

Sacred groves in conservation of plant biodiversity in Banaskantha district, Gujarat, India.

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Abstract

Nature conservation practices are very ancient tradition in India. Useful biodiversity species have much reverence in culture of our country. Sacred groves are seen through out Gujarat, having varied forms, cultural practices and belief systems. The vegetation in the groves is highly varied viz. mangroves, fresh water swamps, or other tropical forest types. Sacred groves represent longtradition of environmental conservation based on indigenous knowledge by the tribal communities of Banaskantha District, Gujarat, India. The study deals with the role of sacred groves in conservation of plant biodiversity in Banaskantha District, Gujarat, India. Among the 11 sacred groves surveyed, over 25 different plant species are reported. In the sacred groves surveyed, only a few are well protected while most are partially threatened due to anthropogenic pressure. Considering all the dimensions of sacred groves, it is clear that these groves are considered as one of the most species-rich areas for plants, birds and mammals.

Keywords: *Alocacia indica*, nutritional, medicinal potentials and proximate

INTRODUCTION

Loss of biodiversity of tropical forests is mainly due to degradation and destruction of habitat by anthropogenic activities, is now recognized as a global problem (Wilson,2000). Vedas narrate the impact of *Panchabhootas*, (i.e. sun, soil, air, water and space on the earth). Since, time immemorial, obligations to natural entities remained the main theme in Indian sculpture and scriptures. Use of plant species are known by ethnic tribes who resides in the forest area and play vital role in using the plant diversity for food, cloth, shelter, for the treatment of their regular ailments, utilize the plants and manage to conserve it to some extent for future use¹.

Various indigenous communities all over the world lived in harmony with nature and thus conserved biodiversity^{6,8,11,12}. Many traditional conservation practices of indigenous people in many parts of the world such as small forest patches by dedicating them to the local deity, contributed to the conservation and protection of biodiversity. Sacred Groves are a group of trees or a patch of vegetation protected by the local people through religious and cultural practices evolved to minimize destruction. Generally, Sacred Groves are believed to be a treasure house of medicinal, rare and endemic plants^{3,4}. Sacred groves represent long tradition of environmental conservation based on indigenous knowledge by the tribal communities of Banaskantha District, Gujarat, India.

Gujarat state geographically is divided in to five regions i.e.

North Gujarat, Central Gujarat, Siuth Gujarat, Saushtra and Kutchh. North Gujarat has 4 Districts i.e. Patan, Banaskanths, Sabarkantha and Mehsana.

Banaskantha is a district in Northeast of Gujarat state of India. The region is presumably named after the West Banas River which runs through the valley between Mount Abu and Aravalli Range, entering into the plains of Gujarat in this region and flowing towards the Rannof kutch.The administrative headquarters of this district is Palanpur. The district lies between North latitude 23.33 to 24.25 and East longitude 71.03 to 73.02. It covers an area of 10,751 km². (Fig. 1)

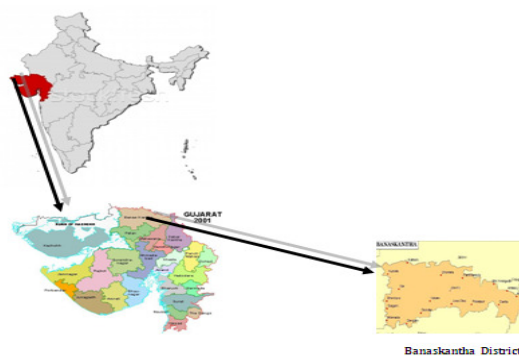


Fig 1. Study Map

METHODOLOGY

The present study was conducted in Banaskantha District, Gujarat, India. Field surveys were conducted in different areas of Banaskantha District, Gujarat during October 2010 to January 2011 for gathering information associated with sacred groves with a conservation of plant biodiversity aspects.

During the study period, survey and questionnaire

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method were followed on the Sacred Groves and their role in biodiversity conservation. The Banaskantha district consists of around 07 miniature Sacred Groves (Table. 1).

Information was gathered from villagers, temple authorities, village headmen, local people, educated persons, and caretakers of Sacred Groves. These groves consist of patches of forest or even individual trees due to sacred belief of the villagers in nature. The informants opined about the presence of a variety of deities.

Table 1.Sacred groves in Banaskantha district

1	Ambaji Mata Sacred grove
2	Shankar Mahadev sacred grove
3	Hanumanji Mandir Sacred grove
4	Mukteshwar Mahadev sacred grove
5	Shembharia Goga Maharaj Sacred Groves
6	Guru nu Bhankharo Sacred Groves
7	Sendhani Mata Sacred Groves

RESULTS AND DISCUSSION

The traditional knowledge evolved over generations on conservation and sustainable management of sacred forests is as much a resource as biodiversity. Tribals have long been stewards in sustainable utilization and conservation of biodiversity. This traditional and indigenous knowledge and ecological prudence underlying genetic conservation may lose for ever unless they are recognized and documented.

During survey, the distribution of 43 species was recorded in 07sacred groves of Banaskantha district. The present study revealed that the sacred groves of Banaskantha district represent the remnants of relic and taxonomically a total of 43 species belonging to 31 families, were identified in the sacred groves (Table. 2 - Enumeration). The number of frequency of families was represented in Fig. 2. Among them twenty trees, seven shrubs, thirteen herbs and three climbers. Some interesting herbaceous plants were also found inside the sacred grove.

Among 43 plant species, 47% are trees, 16% shrubs, 30% herbs and 7% climbers. The population is largely concentrated in four species, viz. *Azadiracta indica*, *Aegle marmelos*, *Ficus bengalensis*, *Ficus glomerata*, *Ficus religiosa*, *Mangifera indica*, *Salvadora oleoides*.

A few rare and threatened plants are also found in these groves like *Acacia catechu*, *Bombax ceiba*, *Butea monosperma*, *Calotropis gigantea*, *Datura innoxia*, etc. All plant species found in these groves are economically important and almost 90% plants are used as medicine by indigenous people. Some groves are owned and managed by several families which protect the plants of the groves from one generation to other for their ritual believes.

From all the 07 sacred groves, few are very important and play an important role in conservation of biodiversity. Such as in Mukteshwar Mahadev sacred grove in Mukteshwar village, an area of about 1,000 sq m is conserved around the Mukteshwar Mahadev sacred grove and plants like *Acacia catechu*, *Aegle marmelos*, *Azadiracta indica*, *Ficus bengalensis*, *Salvadora oleoides*, *Bombax ceiba*, and *Datura innoxia* etc are protected. Human activities like grazing and cutting trees are prohibited in this grove.

Guru nu Bhankharo Sacred Groves is situated on the bank of the river Saraswati near the village of Mukteshwar. The believes that the deity fulfills everyone wish and after fulfillment of

the wish. The grove is surrounded by the plants *Azadiracta indica*, *Aegle marmelos*, *Ficus religiosa*, *Melia azaderach*, *Mangifera indica*, *Prosopis cineraria*, *Salvadora oleoide*, *Tamarindus indica* and *Ziziphus jujuba* etc.

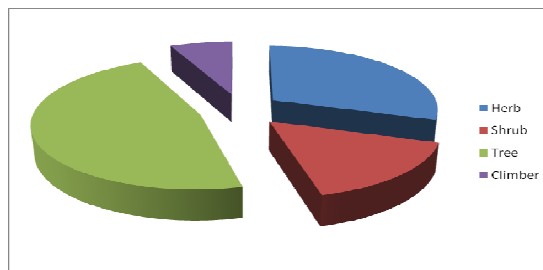


Fig 2. Distribution of Plant Species in Percentage



Fig 3. Mukteshwar Mahadev Sacred Grove



Fig 4. Old wood of Aegle in Mukteshwar Sacred Grove



Fig 5. Hanumanji Mandir Sacred Grove



Fig 6. Sendhani Mata Sacred Grove



Fig 7. Shankar Mahadev Sacred Grove

Around 20 km from Mukteshwar, a famous Shembharia Goga Maharaj Sacred Groves is situated on the bank of the river saraswati near the forest area of Shembhar village. where plants are conserved in a boundary near the Shembharia Goga Maharaj Sacred Groves. The main plants species that are

conserved in the grove are *Acacia arabica*, *Acacia catechu*, *Aegle marmelos*, *Acacia catechu*, *Asparagus racemosus*, *Bombax ceiba*, *Dalbergia sissoo*, *Datura innoxia*, *Datura metel*, *Mangifera indica*, *Prosopis cineraria*, *Salvadora oleoide* and *Tamarindus indica* etc.

Shankar Mahadev sacred grove is situated on the bank of the river Saraswati. According to the local prayer, the tribal of the village coming daily for good worship and the deity is represented by milk. The grove mainly surrounded by few trees of *Azadirachta indica*, *Butea monosperma* and *Ficus benghalensis*. *Ficus benghalensis* (Vad) is now considered to play an important role in the conservation of many kind of insects, birds etc. The *Azadirachta indica* (Neem) trees having various medicinal benefits. *Butea monosperma* is employed in Hindu ceremonies and having medicinal benefits

Table 2. Enumeration

No.	Botanical Name	Family	Local Name
1	<i>Acacia arabica</i> (Lam.)	Mimosaceae	Baval
2	<i>Acacia catechu</i> (L.f.)	Fabaceae	Kher
3	<i>Achyranthes aspera</i> L.	Amaranthaceae	Anghedi
4	<i>Aegle marmelos</i> L. (Corr.)	Rutaceae	Bili
5	<i>Aloe vera</i> L.	Asphodelaceae	Kuvarpathu
6	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Satavari
7	<i>Azadirachta indica</i> A. Juss	Meliaceae	Limdo
8	<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	Satodi
9	<i>Bombax ceiba</i> Linn.	Bombacaceae	Shimlo
10	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Kesudo
11	<i>Calotropis gigantea</i> L.	Asclepiadaceae	Safed Aakdo
12	<i>Capparis aphylla</i> (Roth.)	Capparaceae	Kerdo
13	<i>Cassia fistula</i> L.	Caesalpiniaceae	Garmalo
14	<i>Cassia tora</i> L.	Caesalpiniaceae	Kuvadiao
15	<i>Catharanthus roseus</i> L. (G.Don.)	Apocynaceae	Barmasi
16	<i>Citrullus colocynthis</i> L.	Cucurbitaceae	Kadva Indravarna
17	<i>Cynodon dactylon</i> L.	Poaceae	Dharo
18	<i>Cyperus rotundus</i> L.	Cyperaceae	Chiyo
19	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	Sisam
20	<i>Datura innoxia</i> (Mill.)	Solanaceae	Dhaturo
21	<i>Datura metel</i> L.	Solanaceae	Dhaturo
22	<i>Eclipta alba</i> L.	Asteraceae	Jal Bhagaro
23	<i>Emblica officinalis</i> L.	Euphorbiaceae	Amala
24	<i>Euphorbia neriifolia</i> L.	Euphorbiaceae	Thor
25	<i>Ficus bengalensis</i> L.	Moraceae	Vad
26	<i>Ficus glomerata</i> Roxb.	Moraceae	Umaro
27	<i>Ficus hispida</i> Linn. F.	Moraceae	Dhed Umaro
28	<i>Ficus religiosa</i> L.	Moraceae	Pipal
29	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Sevan
30	<i>Justicia adhatoda</i> L.	Acanthaceae	Aradusi
31	<i>Mangifera indica</i> Linn.	Anacardiaceae	Ambo
32	<i>Melia azadirachta</i> L.	Meliaceae	Bakan Limdo
33	<i>Musa paradisiaca</i> L.	Musaceae	Kel
34	<i>Ocimum sanctum</i> L.	Lamiaceae	Tulsi
35	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Bhoy Amali
36	<i>Prosopis cineraria</i> L.	Mimosaceae	Khijdo
37	<i>Salvadora oleoides</i> L.	Salvadoraceae	Piludi
38	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Amali
39	<i>Tinospora cordifolia</i> (Thunb.) Miers	Menispermaceae	Galo
40	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Gokharu
41	<i>Tridax procumbens</i> L.	Asteraceae	Pardesi Bhagaro
42	<i>Withania somnifera</i> L.	Solanaceae	Ashwagandha
43	<i>Ziziphus jujuba</i> L.	Rhamnaceae	Bor

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